

## Place-Based Learning Game for Cultural Awareness

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**Abstract:** Culture is often put off in many language learning classrooms because there is not enough time to get through grammar, vocabulary, listening, and speaking exercises. To help solve this issue, this study seeks to incorporate place-based learning and gamification theories into a mobile augmented reality game can to motivate Chinese language learners to learn more about Chinese culture. The game was created through the ARIS platform that had Mandarin Chinese language learners exploring and completing quest in Honolulu Chinatown in order to bring back life to the community through the teachings of Dr. Sun Yat Sen. A total of 10 participants signed up to participate in this study. For this project, John Keller's ARCS model for motivation design was used. To evaluate participants motivation, a retrospective survey was issued to each participant to rate their motivation levels before and after playing. **Results show that the game was able to raise participant's overall motivation and appreciation for Chinese culture and that place-based learning had allowed players to be immersed within a culture. This had provided them with opportunities to interact with a community, but further revisions need to be made to provide more opportunities for speaking with people in the community.**

As we advance through the 21st century, we as educators need to be open to new ideas, and be aware of the technological advances being made. Although traditional classroom learning and textbook literacy still remains the primary focus of today's modern education, educators need to make an effort to build their own awareness and understandings of the new literacies that are currently being developed (Gallego and Hollingsworth, 1992). The world as we know it is rapidly changing, students are consistently engaging with new literacies and developing their own through their online activities.

With the advent of mobile devices and tablets, we have instant access to information on an astronomical scale that was not previously available. People are able to look up the answer to any question, stay connected with friends and family living around the world, find reviews on where they should go for dinner, and then use the onboard GPS to guide them to that destination. These are the kinds of new literacies that educators should value. By embracing these types of new literacies that many of today's youths are familiar with, this project hopes to show that mobile assisted learning is a viable means to create meaningful and memorable experiences that enhances retention, and provides students with the agency to take control of their own learning.

With more people having access to mobile devices, there has been a push for placed-based education that can better situate learners within the space they inhabit. Lave & Wenger (1991) defines situated learning as learning and knowledge that is specific to the current situation, and that not all knowledge can be transferred to another. For example, if we learn language in a

classroom, the set of skills we learn in class does not fully prepare us to cope with organic language in a real world setting because real world language does not follow a formula and cannot be replicated. Place-based learning highlights concepts that are nested within the local system, history, and through interactions with local people. Place-based learning has been adopted by researchers to reconstruct abstract knowledge to local knowledge that is related to a community's cultural practices (Zimmerman & Land, 2014).

The purpose for this instructional design project was to create and evaluate the effectiveness of a place-based augmented reality mobile game that increases Chinese cultural awareness and motivation for students in Mandarin Chinese classes.

## Literature Review

Gee (2003) argued that games are a model for situated learning, and that through game play, players regularly experience changes in knowledge, skills, and attitudes. Gee mentions the 36 learning principles of good video games, which defines good games on how they teach players to play the game properly, effectively, and also immersing players within a virtual world. One of these principles is called the projective identity. Put simply, players will try to fill the role of the virtual character, by learning everything there is to know about that particular universe, mastering every aspect of the game, and eventually fulfilling the final objective of the game, be it rescuing princesses or finding the most efficient way to smash pots for more rupees.

ARIS (<https://arisgames.org/>) is a game-based platform that has been used recently in a study conducted by Holden & Sykes (2011) in which they created a mobile game called *Mentira*. The study sought to get students out of the classroom and use all the language skills they had learned in uncontrolled high stakes real-life situations. *Mentira* challenged students to go to historic sites and interact with the environment and speak to local people in order to get answers. It was found that students were actively participating in the game, and that as time went on, their time spent playing the game had increased, which seemed to show that they were spending more time reading and trying to understand the current situation. Researchers had concluded that their game wasn't perfect, but that it would serve as an example for future place-based learning research projects. They had also stated that although place-based learning is still in its infancy, it does show signs of promise in the future of education.

Place-based learning has gotten more attention over the years with more and more people getting access to smartphones and tablets. Squire (2009) argues that the affordances provided by mobile devices allow students to be situated in the moment, and that they have the opportunity to bring more of themselves into that place. This gives them the freedom to explore and investigate things they find interesting in very dynamic ways that align with their own personal interests. Our past experiences play a very important role when it comes to learning new information (Lemke, 1992). If students are exposed to Chinese culture and language in a Chinese environment, we can expect that their direct experiences with that community will benefit them in the long term because they would have had a past experience to relate to.

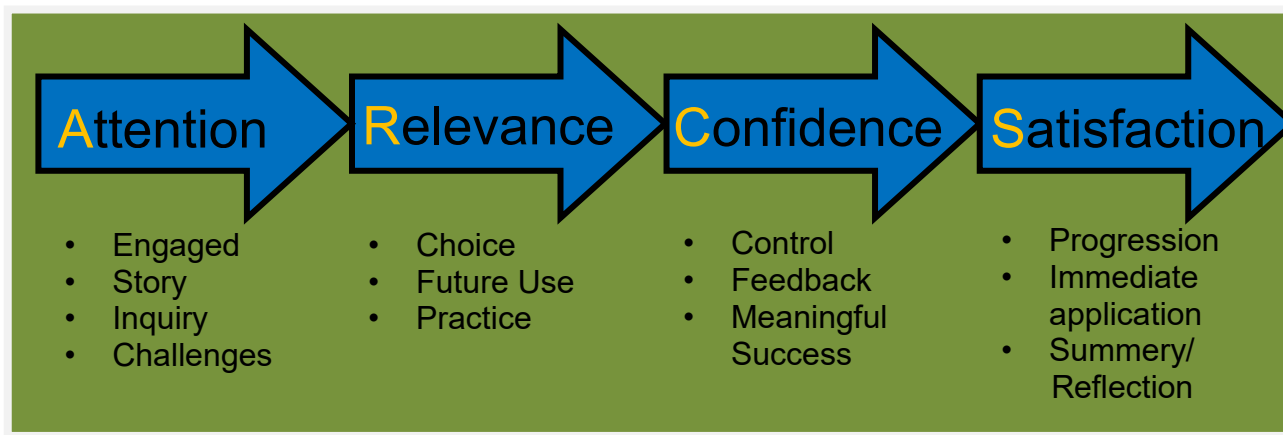
Researchers at the University of Hawaii at Manoa had also created the game *Guardians of the Mo`o* (Zheng, et al 2016) through the ARIS program for iOS devices. This study sought to

answer how place and space can be meshed with technologies for learners to experience both meaning-making and field of care. It was found that place has the ability to change learners' perception of place. If used wisely, mobile technology can be used as a catalyst that bridges the boundaries between classrooms, virtual space, and place through carefully designed activities. The transfer between space and place afforded by mobile technologies can help solve the many problems superimposed by the limited, lifeless, and placeless features of the classroom (Chemero, 2009).

### Project Development

The goal for this project was to increase participants' appreciation towards Chinese culture, their motivation to learn more about Chinese culture, and to find out whether they feel learning about culture is relevant to language learning. For this project, a game was designed through the ARIS augmented reality platform for Apple iOS devices. The game incorporates the story and themes surrounding Dr. Sun Yat Sen's life on Oahu, with the majority of it focusing on his eight pillars which define how people should act and treat others. The game was fully translated into Mandarin Chinese by two native Mandarin speakers who are both highly proficient in colloquial and academic English.

This project examines the affective domain through John Keller's ARCS model (Figure 1) for motivational design. This model consists of four parts, attention, relevance, confidence, and satisfaction. In the attention category, I had created a game that engaged participants by having them be physically active where they would have to perform actions in the real world to complete various language related tasks. The game was also story driven that presented participants with challenges and questions they needed to complete in order to progress.



**Figure 1.** ARCS model and relevant components.

For relevance, participants were given choices in where and what they wanted to investigate. This means they were not required to go to points A, then B, then C, but allowed them to pick and choose which location and what they would learn there. At each of these places, they would have opportunities to use what they have learned in the game to finish quests, as well as using all the Chinese they have learned.

In confidence, I wanted them to have as much control as possible. Similar to choice in relevance, I wanted them to do the things they thought was most important to them or something they would do if they had encountered the situation outside of the game. The game had offered feedback after each quest was completed, and each task had them do something meaningful which had them think deeply about an issue.

Last in satisfaction, players experienced progression in the form of quests, where participants are able to see what they have done and how it has built up over time. Things that they have learned throughout the game were able to be used later in the game because it required them to think back to their previous experiences. Lastly, the end of the game required participants to look back and reflect on what they have done and how it has changed their opinions and outlooks from when they first started.

Palalas (2013) article presents 5 different spaces for mobile learning which include the temporal, physical, transactional, technological, and the pedagogical. Each of these spaces have been incorporated into this game to create an enriched learning ecosystem that has players interacting with one another, has them formulating their own opinions, and being situated in a physical space relevant to the content being presented. To create the most optimal experience for players, Csikszentmihalyi's (1990) theory on flow has played an integral part in the game's creation. Like many other games, this game eases players into it by providing tutorials and an easy introductory quest to prepare players for the real game. As the game progresses, tasks will become much more difficult for what they will be asked to do and how they should respond to each quest.

ARIS was chosen as the platform in which participants will be playing our game on because it is free and is something that I am very familiar with. ARIS is an open source software that allows creators to develop place-based games for anyone and does not require any programming knowledge. Because ARIS does not charge for its services or have a large team, the app is only available for Apple iOS devices at this time.

Because this is a place-based game for Mandarin Chinese, I had picked Honolulu Chinatown as the primary setting for the game. While there, participants will be taken around Chinatown to visit the statue of Dr. Sun Yat Sen, the Maunakea Marketplace, the Chinese Cultural Plaza, and the Sun Yat Sen Memorial Park. While at these places, players need to solve problems that require them to learn about the cultural significance of architecture, statues, medicine, and food. The game provides general hints as to what each of these can potentially mean, and it is up to the players to do research by talking with people in the community in Mandarin Chinese and interacting with non-player characters within the game to gain a better understanding and tie everything together. At each location, players learn about some cultural aspects of the Chinese people and see how Sun Yat Sen's teachings were exemplified within each quest.

With the exception of the in game tutorial, all text and dialogue was translated into Mandarin Chinese. The dialogue screen (Figure 2) is the primary way in which players will be interacting with in game characters and objects. At the bottom, there will most often be multiple choices which will allow players to finish a task in a variety of ways, but no matter how they choose to approach a situation, the ending of the game will always be the same and everyone will have visited the same places. The inventory screen (Figure 3) is where players can view what an item

is, how many they currently have, and for certain items, there will be a short description describing it. From here players will know that they currently possess the first of many key fragments that must be collected during their travels.

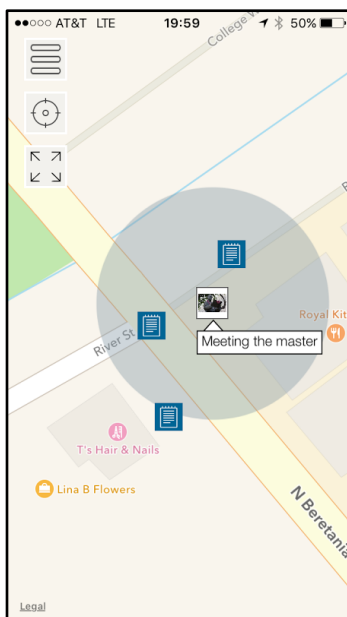


**Figure 2.** Conversation screen.

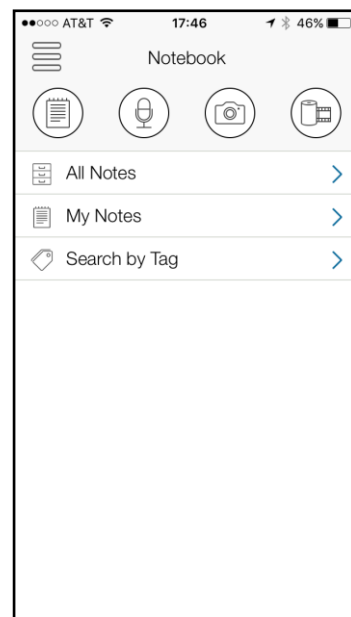


**Figure 3.** Inventory screen.

The in game map (Figure 4) is very similar to the map app on all Apple devices. From this screen, players are able to view their own location, see various points of interests, non-player character locations, and other notes created by other players. The notebook function (Figure 5) of ARIS is the way players will be able to complete quests by submitting notes in the form of text, audio, picture, and video. This game will use all forms of notes, but only in specific situations. Most quests will ask for participants to submit a text note to explain their answer, but there will be times when others will be used.



**Figure 4.** Map screen.



**Figure 5.** Note creation screen.

## Methodology

### Research questions

There are three research questions that are being proposed for this study. After playing the game 1) Has students' Chinese cultural awareness increased? 2) Has the game motivated students to learn more about Chinese culture?

### Instruments

Pre and post-surveys were given to each of the participants before and after playing respectively. Pre-surveys (Appendix B) asked participants general questions about their current Chinese courses, their familiarity with smartphones and tablets, whether or not they would be interested in a mobile game that would allow them to practice and speak to real people in Chinese. Post-surveys asked participants to provide feedback on how their game sessions went, and whether or not they would like to see something like this game added as a module to their Chinese courses. Each of these surveys were done and administered through Google Forms.

After finishing the game participants were asked to fill out a post-survey (Appendix C), and a retrospective survey (Appendix D). For each of the ARCS areas, participants were asked two questions that had them rate their motivations levels before playing the game. There were also two parallel questions were the same questions but had them rate their motivations after playing the game. Each of these questions were rated on a 1-5 point Likert scale. This was the primary method in which I evaluated how the game has affected participant's motivations and appreciation for Chinese culture. Lastly a short discussion was held with each group to hear their opinions of what they liked, what they disliked, what we can do to improve the game, and what they had learned or thought was most interesting.

### Participants

The target populations for this study were university and high school students in a Chinese Language program with a low advanced level of language proficiency. Students were recruited through the Confucius Institute and University of Hawaii Chinese Flagship program mailing list. Potential participants were given a Flier (Appendix A) and were asked to email researchers if they were interested in participating.

The participants' Chinese language proficiency had to be at the lower advanced level because they need sufficient language ability to read complex text, and also be able to interact with real speakers. Participants also needed to be physically capable and prepared to be walking in the sun for the entire game session.

A total of 10 participants (Table 1) were able to participate in this project. The majority of the participants were University of Hawaii students at 6. All of these participants were 4<sup>th</sup> year Mandarin Chinese language learners who had studied for a minimum for 4 years. One of these participants did indicate that they had been studying for 19 years, but this participant was a heritage speaker meaning that they have family members who do speak the language, but are not

fully proficient themselves. The remaining 4 participants were seniors from Kaiser High School, a local high school on Oahu.

**Table 1.** Participant age and years studied Mandarin Chinese.

Attribute	Number
<b>Age</b>	
16-18	4
19-21	2
22-24	3
25	1
<b>Years studied</b>	
2	1
3	3
4	3
6	2
19	1

## Procedures

For participants who are over the age of 18, a consent form (Appendix E) was emailed to them to complete before participating in the study. For participants who were under the age of 18, parent consent (Appendix F) and assent (Appendix G) forms were emailed to them where child and parent had to sign to participate. After meeting at a predesignated spot in Chinatown all consent forms were collected. Participants were then provided an iPad with a prepaid data plan where they could complete the pre-survey.

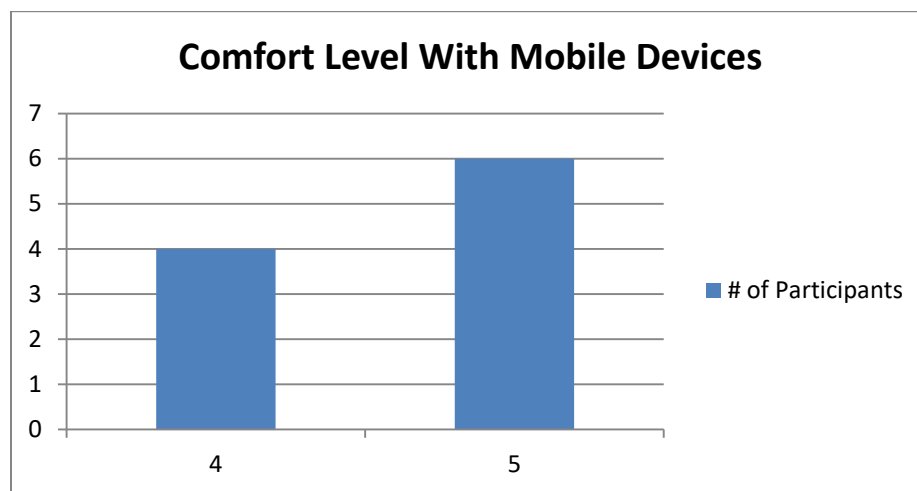
For this study, participants were grouped into pairs for each game session, because the game content can be a bit difficult for only one individual. The game begins in Honolulu Chinatown where each group of participants needed to visit four iconic locations in Honolulu Chinatown and complete several different tasks.

After completing the game, participants were asked to fill out the post and retrospective surveys before leaving. Each session took been two to three hours to complete. After the completing the game, each participant was asked to use the iPad to fill out a post-survey and retrospective through Google forms.

## Results

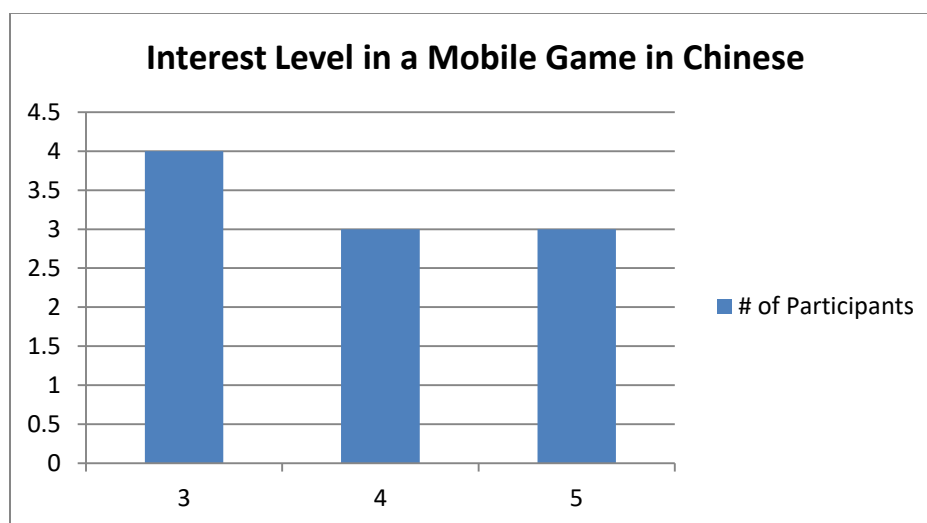
Pre-survey asked participants to “Rate your current comfort levels with mobile devices” (Figure 6). I did not distinguish between mobile phones and tablets because they are all more or less similar by being able perform the same functions in the same manner. Responses were based on a 5 point Likert scale with (1) being “Not at all” and (5) being “Very comfortable.” Out of the

ten participants, four reported comfort levels at a 4, while the remaining six considered themselves “Very Comfortable.” Based on these responses, we can see that using mobile devices as a means to transmit knowledge or engage learners can be a viable method.



**Figure 6.** Comfort level with mobile devices

Participants were then asked “How interested would you be in a mobile game in Chinese that had you use Chinese with real Chinese speakers” (Figure7). Again, participants were to rate this on a five point scale with (1) being “Not interested” and (5) being “Very Interested.” We can see that four of the ten participants were indifferent about the idea. However, three reported a 4, and the last 3 reported themselves as being “Very Interested.” Although not every participant was very keen on the idea of a mobile game for learning, it does show that there is an interest and that a game can be used as a means for higher engagement.

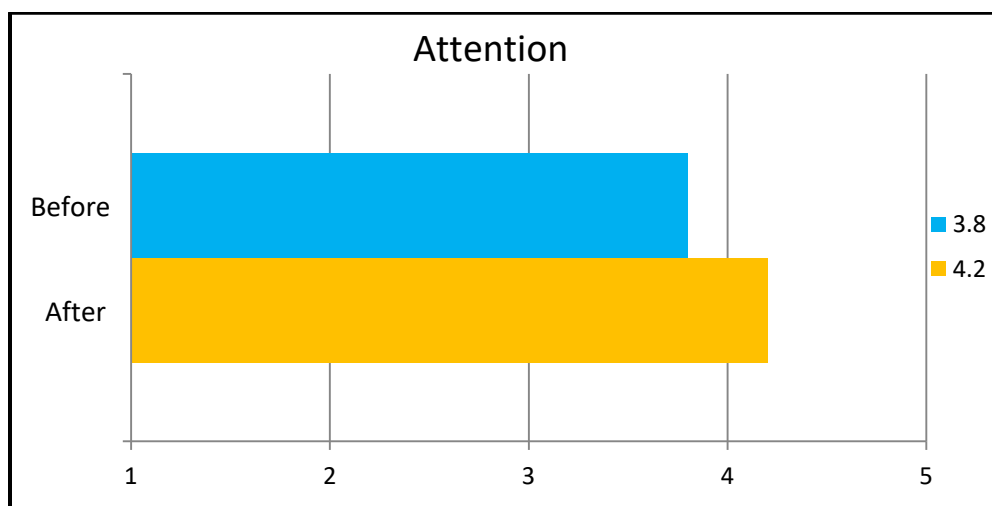


**Figure 7.** Interest level in a mobile game in Chinese



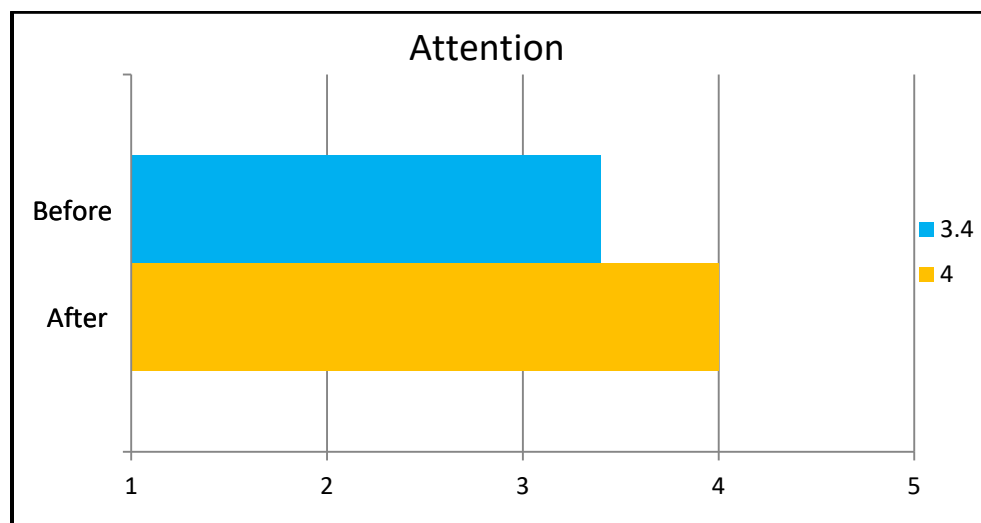
Pre-survey data had also shown that participants actively used their mobile devices as a Chinese dictionary. Every participant mentioned using the app Pleco (<https://www.pleco.com/>) which allows users to look up words, find character meanings by scanning them or drawing them on the screen. Participants had also indicated that they would like to see more coverage of colloquial Chinese in their classes because there are not many opportunities to do so in class. Post-survey data shows that a game like this is something they would definitely be interested in. However, many would only be interested in if the game wasn't so text heavy, and did not contain as many bugs as it did.

In the attention category of the ARCS model retrospective survey (Figure 8), my first question to participants was “Before playing the game rate your motivation level in learning about Chinese culture. Here they had reported a mean score of 3.8 out of 5. Next I had asked participants “After playing the game rate your current motivation level in learning about Chinese culture.” Here a 0.4 increase was seen for a mean of 4.2. Based on comments received, I believe participants were introduced to a variety of new topics, and a few mentioned that they wanted to know more.



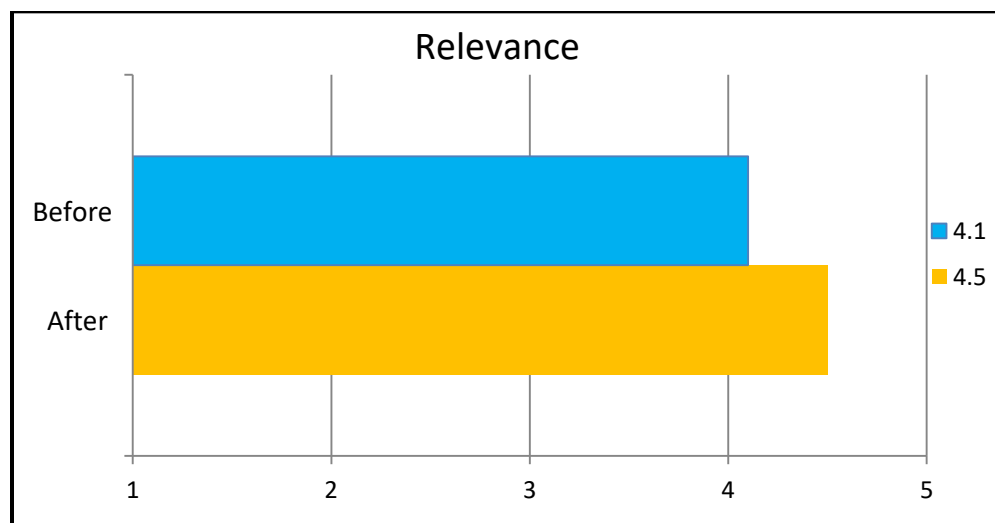
**Figure 8.** Attention: Rate your motivation level in learning about Chinese culture

Next in the attention category, I asked participants to “Rate your motivation level in wanting to visit places with Chinese influences, such as China or Chinatown, to learn more about Chinese culture” (Figure 9) A mean score of 3.4 was reported before playing the game, while a 4 was reported after. I believe this score could have gone up higher, because after looking through individual data, I noticed that two participants had reported lower score than most of the other participants. I believe the lower scores may have been attributed to being harassed by a homeless person while playing the game that may have led to a less than ideal experience.



**Figure 9.** Attention: Rate your motivation level in wanting to visit places with Chinese influences to learn more about Chinese culture.

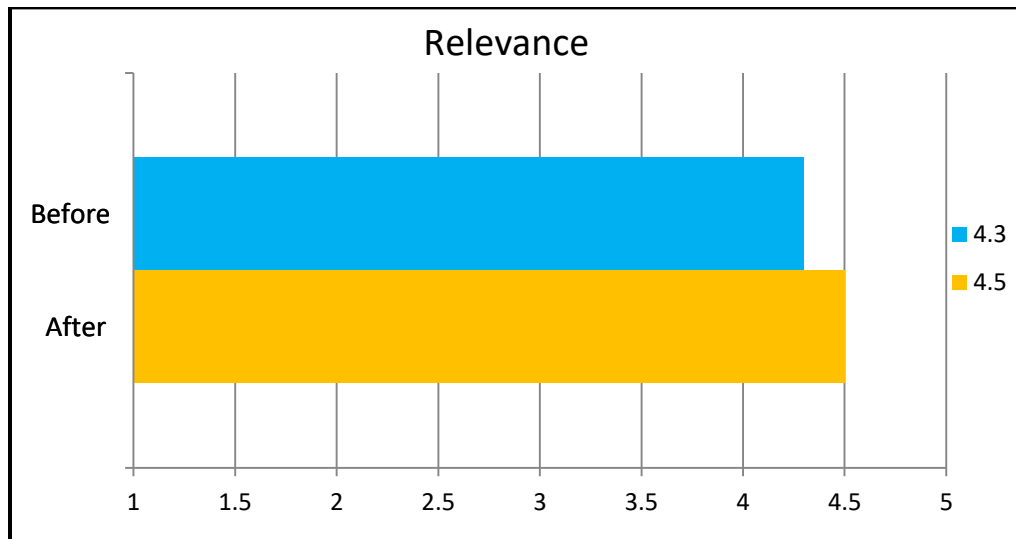
In relevance, I asked “Do you feel that learning about Chinese culture is relevant for language learning” (Figure 10). Before playing the game a mean of 4.1 was reported, while a 4.5 was reported after playing. We can see that they already do believe that learning about culture is important, but I believe the game had shown culture that is deeper than surface level providing them with better understanding of how Chinese people think.



**Figure 10.** Relevance: Do you feel that learning about Chinese culture is relevant for language learning?

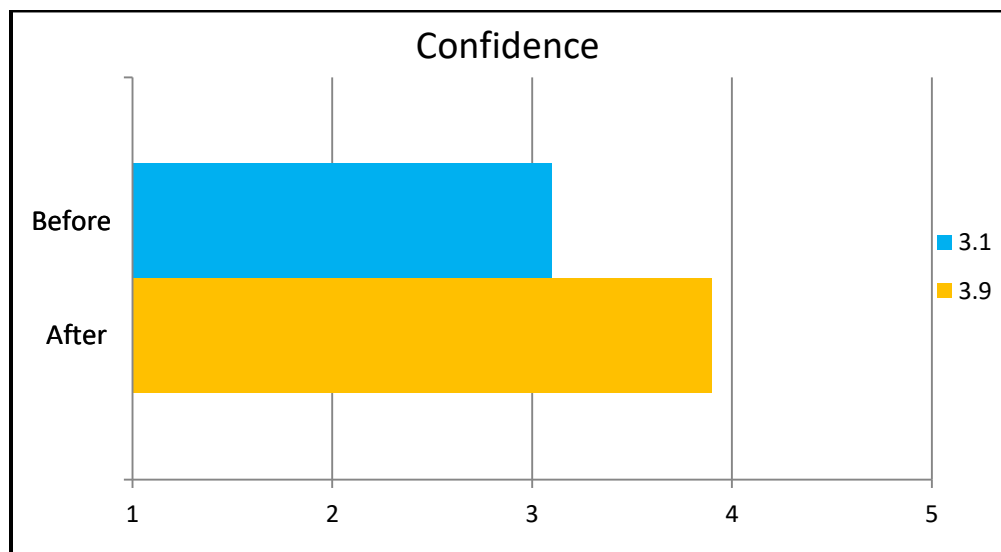
Next I asked participants “Do you feel that learning about Chinese culture will be useful in the future” (Figure 11). Initially a mean score of 4.3 was reported indicating that they already do

think that culture is important. After playing the game there was a slight increase to this score for a total of 4.5.



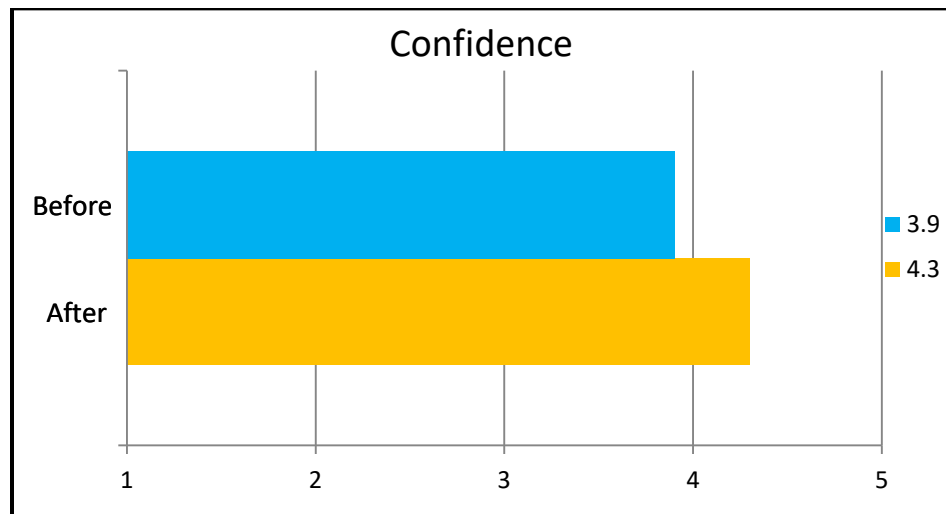
**Figure 11.** Relevance: Do you feel that learning about Chinese culture will be useful in the future?

For confidence, I asked participants “How inclined were you to do research on Chinese culture on your own” (Figure 12). Before playing the game an average of 3.1 was reported, but after playing, there was a large increase in score for a total of 3.9. Some participants did comment that they were very intrigued by the zodiac and wanted to continue researching it, while another did mention having much more appreciation for the many lion statues near Chinese establishments.



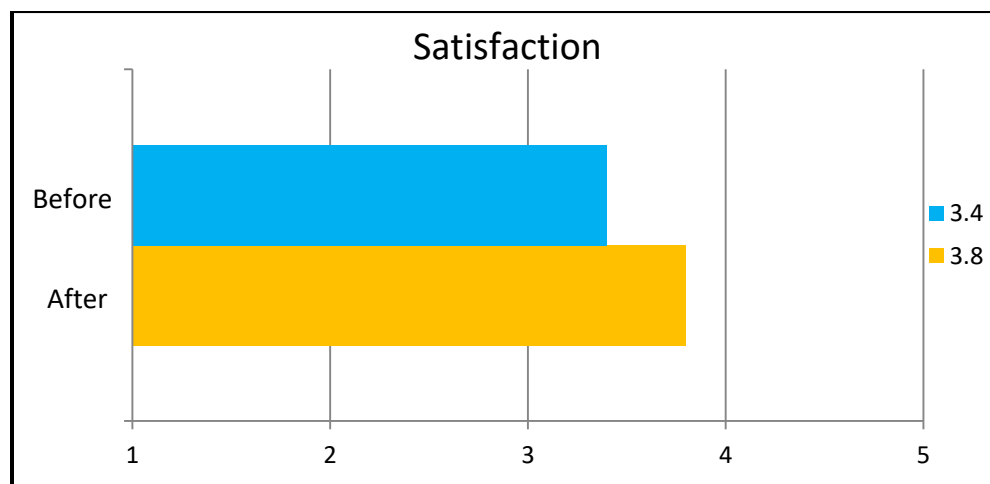
**Figure 12:** Confidence: How inclined were you to do research on Chinese culture on your own?

Last for confidence, I asked “How comfortable were you being in a place with Chinese cultural influences” (Figure 13). Here participants reported a mean of 3.9 before playing and a 4.3 after playing. Based on observations of the participants playing the game, they were very reluctant to speak to people in Chinese, but as time went on there was a noticeable difference in wanting to ask for help.



**Figure 13.** Confidence: How comfortable were you being in a place with Chinese cultural influences?

In the satisfaction category, I asked participants to “Rate your understanding of Chinese culture” (Figure 14). Initial scores show a 3.4, while a 3.8 was reported after. I originally thought that was great, but then I noticed a problem. The parallel question to this question was different and asked participants “Has the game improved your understanding of Chinese culture?” Although a 3.8 was reported after in response to this question, I am unable to quantify how much of an improvement of 3.8 means to the original 3.4, but I can say that there was an overall improvement.



**Figure 14.** Satisfaction: Rate your understanding of Chinese culture

Lastly I asked “Rate your appreciation for Chinese culture” (Figure 15). Before playing, a mean of 4.1 was reported, but unfortunately, like the previous question, the parallel question was not well worded. This is why scores seems to have gone down after playing. The parallel question was “Has it increased your appreciation for Chinese culture?” The game had increased their appreciation by 3.8, but I am not sure how much of an increase this is.

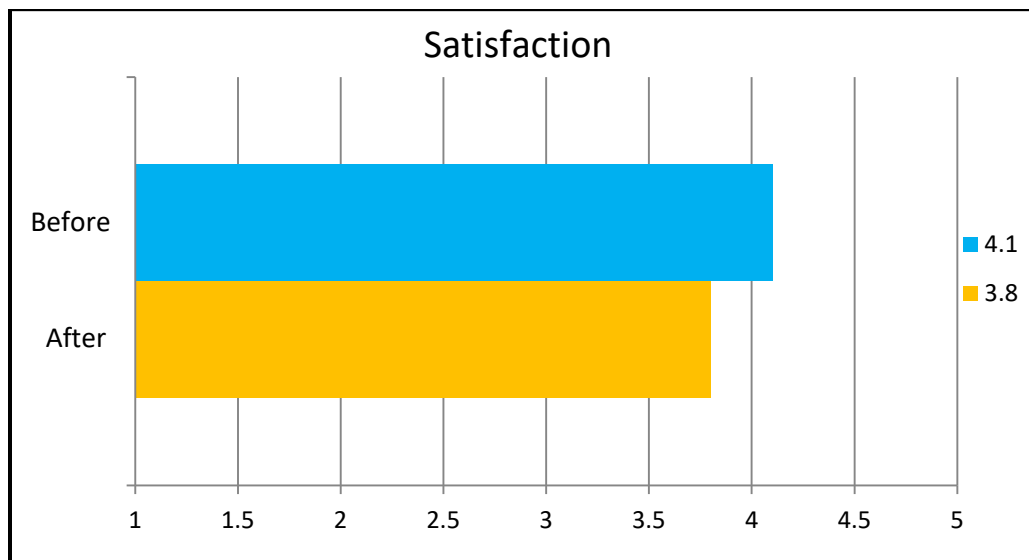


Figure 15. Satisfaction: Rate your appreciation for Chinese culture

## Conclusion

My first research question was “Has students’ Chinese cultural awareness increased?” After reviewing comments made during and after playing the game, as well as post survey questions, all participants did mention that they all did learn something new and valuable. One participant did say that “I never knew there was so much meaning to even the most mundane of things, and I’m glad I have a much better understanding of them.”

For my second questions I asked “Has the game motivated students to learn more about Chinese culture?” Based on the overall data, a place-based mobile game was effective in increasing Chinese cultural awareness and motivation for Mandarin Chinese language learners. In each of the ARCS areas, there was an increase to the mean scores after playing the game. However, it is hard to say how much of an improvement participants saw in the satisfaction category due to poor wording. Although I am unable to see how much of an improvement there was, participants did report that the game did increase their motivation.

This project also had its fair share of issues. A large number of participants’ feedback pointed out that they language level of the game was much too hard, for many language learners. I had expected to high school students to struggle, but not as much as they did. In their cases, a native Chinese speaker had to help them get through a very large portion of the dialogue. Although the game was manageable for the university participants, there were a few parts they struggled on.

The ARIS platform in which the game was created on does have quite a few bugs that can be very frustrating. Often times, participants needed to restart the app on several different occasions which would break the overall game experience. There were also times where the game would not read players locations correctly which forced them to walk in circles or try to relocate to another location hoping the game would pick up their location and progress through the quest. There was also one group whose game didn't want to accept their answer to trigger the final quest. For this group, they needed to join another group whose game did make it to the final quest. This situation was less than ideal because there were too many people trying to look at once screen, and the joining group played a more passive role when the game prompted them to answer the final question.

Although the game was successful in its original goal, there are plans to improve the game. Originally the game had more speaking opportunities, but many were cut because the difficulty of the game was too high even for 4<sup>th</sup> year Chinese learners. Because of this change, there were only two speaking task, one required, and the other optional. Each group knew that the optional speaking task was the hardest of those provided and always decided to go with something easier. In future iterations of the game, I would like to add more speaking tasks that requires players to speak with real people so they get that practice. As of now, the game is written in only Mandarin Chinese, but there are plans to translate the game into English so those who do not speak Chinese can play the game. Based on the feedback that was received, the language level of the game should be brought down for new Chinese language learners can play the game. Although culture is important, it may be better to introduce these topics earlier which may help motivate them to pursue any language goals they may have. Lastly, I would like to port the game to another platform or create one because ARIS does have its fair share of issues and does not have all the features that I would like to include within the game.

This project shows that by adding gamification elements and embracing mobile technology, educators have the ability to enhance students' education by giving them more opportunities to do the things that inspire them. It also showcases how technology can be used effectively, and with proper design and implementation, can be a tool that will enhance content retention and student engagement.

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Appendix A  
Recruitment Flier



The flier features a background illustration of a large green bean with a smiling face. In the top left corner, there is a small inset image of a green bean with a face and a small 'rō' character next to it. The title 'Recruiting Game Participants!' is written in a large, bold, black, slightly curved font across the top. Below the title, the text is organized into several sections with varying background colors: a light brown box for the game title, a light green box for the target audience, a light brown box for location, a light green box for compensation, a light brown box for the response deadline, and a light green box for contact information.

**Recruiting Game Participants!**

**Place-based mobile game: Seeds of Peace**

**Who can join?**  
High-Intermediate to Advanced level Chinese learners

**Location:** UH Manoa ⇌ Chinatown  
Discover the hidden gems of nostalgic 唐人街

**Compensation:** Cash Reward \$\$\$!!

**Respond by March 10th to play**  
Refreshments and water will be provided for your adventure!

**Hurry, game places are going fast! Contact:**

Professor Dongping Zheng (PhD)  
(808) 635-0279; zhengd@hawaii.edu  
Yang Liu (808) 308-1368; yl6@hawaii.edu  
Lin Zhou (401) 867-1288; linzhou@hawaii.edu



**APPENDIX B****Pre-survey**

## Chinese Courses

Form description

**Name**

Short answer text

**How long have you been studying Chinese? \***

Short answer text

**What do you like about your current Chinese classes? \***

Short answer text

**What do you dislike about your current Chinese classes? \***

Short answer text

**Are there any topics that you would like to be covered but are not currently covered? If so please explain.**

Long answer text

## Technology: Mobile Devices

Description (optional)

How familiar are you with smartphones and tablets? \*

	1	2	3	4	5	
Not at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Familiar

What do you usually do with your smartphone or tablet? \*

Short answer text

Have you ever used your smartphone or tablet to help you with your Chinese? \*  
If so how did it help you?

Short answer text

How interested would you be in a gamified mobile game that had you use Chinese with real Chinese speakers? \*

	1	2	3	4	5	
Not interested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very interested

Have you heard of Chinatown in downtown Honolulu? \*

☐ Yes

☐ No

Have you been to Chinatown in downtown Honolulu? \*

☐ Yes

☐ No

## Appendix C

### Post-survey

Name \*

Short answer text

Was the game helpful in learning about Chinese culture? Explain. \*

Short answer text

Are there any other areas of culture that you would like to see covered? \*

Short answer text

Would you be interested in seeing something like this in every Chinese course? Explain. \*

Short answer text

Was this experience helpful in allowing you to practice your Chinese? Explain. \*

Short answer text

What do you think worked well? \*

Short answer text

What do you think needs improvement? \*

Short answer text

Please rate your overall experience \*

1

2

3

4

5

Terrible

☐☐☐☐☐

Excellent

## Appendix D

### Retrospective Survey

#### Attention

Form description

Name

Short answer text

Before playing the game rate your motivation level in learning about Chinese Culture \*

	1	2	3	4	5	
Not Motivated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Motivated

After playing the game rate how your current motivation level in learning about Chinese culture \*

	1	2	3	4	5	
Not Motivated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Motivated

Before playing the game rate your motivation level in wanting to visit places with Chinese influences (e.g. China, Chinatown) to learn more about Chinese culture. \*

	1	2	3	4	5	
Not Motivated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Motivated

After playing the game, rate how your current motivation level in wanting to visit places with Chinese influences (e.g. China, Chinatown) to learn more about Chinese culture. \*

	1	2	3	4	5	
Not motivated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Motivated

## Section 2 of 4



## Relevance

Description (optional)

Before playing the game did you feel that learning about Chinese culture is relevant for language learning?



1 2 3 4 5

Not relevant ☐ ☐ ☐ ☐ ☐ Very relevant

After playing the game do you feel that learning about Chinese culture is relevant for language learning?

★

1 2 3 4 5

Not relevant ☐ ☐ ☐ ☐ ☐ Very relevant

Before playing the game did you feel that learning about Chinese culture will be useful in the future?

★

After playing the game do you feel that learning about Chinese culture will be useful in the future?

★

Section 3 of 4

Confidence

Description (optional)

Before playing the game how inclined were you to do research on Chinese culture on your own? \*

1 2 3 4 5

Not inclined ☐ ☐ ☐ ☐ ☐ Very inclined

After playing the game how inclined are you to do research on Chinese culture on your own? \*

1 2 3 4 5

Not inclined ☐ ☐ ☐ ☐ ☐ Very inclined

Before playing the game how comfortable were you being in a place with Chinese cultural influences? \*

1 2 3 4 5

Not comfortable ☐ ☐ ☐ ☐ ☐ Very comfortable

After playing the game how comfortable are you being in a place with Chinese cultural influences? \*

1 2 3 4 5

Not comfortable ☐ ☐ ☐ ☐ ☐ Very comfortable

## Section 4 of 4

## Satisfaction

Description (optional)

Before playing the game rate your understanding of Chinese culture \*

After playing the game as the game improved your understanding of Chinese culture? \*

	1	2	3	4	5	
No improvement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Greatly improved

Before playing the game rate your appreciation for Chinese culture. \*

After playing the game, has the increased your appreciation for Chinese culture?

1 2 3 4 5

No improvement ☐ ☐ ☐ ☐ ☐ Greatly improved

**Appendix E**  
**University Student Consent Form**

**Consent Form: Mobile-Assisted Place-Based Language Learning**

**Principal Investigator:**  
**Dongping Zheng, Associate Professor, Department of Second Language studies,**  
**University of Hawaii.**

**Can be reached via Mobile Phone: (808) 635-0279, and or via email [zhengd@hawaii.edu](mailto:zhengd@hawaii.edu)**

We are conducting a research study of how gamification and place-based learning affect student's appreciation and motivation to learn more about Chinese culture. We are asking you to participate in this project because you are at least 18 years old and are currently enrolled as a student at intermediate high or advanced level in a Chinese language program.

**Project Description – Activities and Time Commitment:**

If you decide to take part in this study, you will be expected to attend one gameplay session that will take place on a Saturday or Sunday. These sessions will have you walking around Chinatown and completing Chinese Language related tasks in Chinese using a gaming app on a mobile device we will provide. These sessions will take approximately 1-2 hours to complete.

You will be also asked to fill out a pre and post survey. These surveys will consist of mostly multiple choice questions with a few open ended responses. Both surveys will be completing before and after gameplay, and will be done through Google forms. Each survey will take approximately 10 minutes to complete.

At the end of each session, a short group interview will be done. Interview questions will ask you how we can make the game better. Interviews should take approximately 10-15 minutes.

**Benefits and Risks:**

By participating in this project, will be able to practice the Chinese you have learned in class. Possible risks to you are that you will be expected to walk for 1-2 hours. Those who are unable to do this should not sign up for this study. Temperatures can reach in the upper 80's on a hot day in downtown Honolulu. You are advised to bring your own water and we will provide you with snacks in case you get tired from walking.

**Compensation:**

By choosing to participate in this project, you will receive \$20 in cash.



**Confidentiality and Privacy:**

Your privacy is very important to us, all surveys and interview questions will not be used for any other purpose other than for this study. We will not publish any of your names and will replace them with pseudonyms if need be. Each gameplay session will be video and voice captured by a participating researcher who will be accompanying you. Voice and video data will be uploaded to a password protected cloud drive that only my project members can access. The video recordings will help us understand how you make use of designs provided in the app to actively pick up clues in your surroundings to help you solve problems. After all data has been analyzed, all survey, voice, and video records will be destroyed.

**Voluntary Participation:**

You can freely choose to take part or to not take part in this study. There will be no penalty for either decision. If you do agree to participate, you may also withdraw at any time.

**Questions:**

If you have any questions regarding this research project, please contact the researcher, Dongping Zheng at (808) 635-0279 or [zhengd@hawaii.edu](mailto:zhengd@hawaii.edu). You may contact the UH Human Studies Program at (808) 956-5007 or [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu). to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit

<https://www.hawaii.edu/researchcompliance/information-research-participants> for more information on your rights as a research participant.

**Please sign and date below:**

I have read and understand all information provided. I agree to participate in this research study.

Name (Print)\_\_\_\_\_ Signature\_\_\_\_\_

Date\_\_\_\_\_

I agree to be filmed and have my voice recorded.

Name (Print)\_\_\_\_\_ Signature\_\_\_\_\_

Date\_\_\_\_\_

\* You must agree to both conditions to participate in this study.

**Appendix F**  
**Parent Consent Form**

**INFORMED CONSENT STATEMENT**

**Consent Form: Mobile-Assisted Place-Based Language Learning**

**Principal Investigator:**

**Dongping Zheng, Associate Professor, Department of Second Language studies,  
University of Hawaii.**

My name is Dongping Zheng, and I am a professor in the Department of Second Language Studies (SLS) at the University of Hawaii, Manoa. As a professor and a researcher, I do research on designing game-based virtual worlds to engage kids to immerse in gameplay for learning a foreign language. My current project is to design a Chinese mobile game through the ARIS mobile app (<https://arisgames.org/>) for young people like your child. We need your child's help not only to design a game that kids love to play, but also we would like to help your child learn and use Chinese in a fun and challenging way and introduce your child to different aspects of Chinese culture. Some of my graduate students in the SLS department are working with me on this project. As part of the evaluation process, we will observe how your child interacts with native speakers of Mandarin Chinese in Honolulu Chinatown. We will also interview your child with a few questions, ask them to fill out a few surveys, and record their interactions with Chinatown's community and group members with a video camera.

We invite your child to participate in this project. Because s/he is a minor (under age 18), we will also ask your child for her/his consent before they can participate in this project.

**Project Description – Activities and Time Commitment:**

If you decide to allow your child to take part in this study, they will be expected to attend one gameplay session that will take place on a Saturday or Sunday. These sessions will have them walking around Chinatown and completing Chinese Language related tasks in Chinese using a gaming app on a mobile device we will provide. These sessions will take approximately 1-2 hours to complete. They will be accompanied by a project team member at all times during these sessions.

Your child will be also asked to fill out a pre and post survey. These surveys will consist of mostly multiple choice questions with a few open ended responses. Both surveys will be

completing before and after gameplay, and will be done through Google forms. Each survey will take approximately 10 minutes to complete.

At the end of each session, a short group interview will be done. Interview questions will ask your child how we can make the game better. Interviews should take approximately 10-15 minutes.

**Benefits and Risks:**

By participating in this project, your child will be able to practice the Chinese they have learned in class. Possible risks to your child are that they will be expected to walk for 1-2 hours. If you believe your child is unable to do this, do not consent to this study. Temperatures can reach in the upper 80's on a hot day in downtown Honolulu. You are advised to have your child bring their own water and we will provide them with snacks in case they get tired from walking.

**Compensation:**

If your child chooses to participate in this project, they will receive \$20 in cash.

**Confidentiality and Privacy:**

Your child's privacy is very important to us, all surveys and interview questions will not be used for any other purpose other than for this study. We will not publish your child's names and will replace them with pseudonyms if need be. Each gameplay session will be video and voice captured by a participating researcher who will be accompanying them. Voice and video data will be uploaded to a password protected cloud drive that only my project members can access. The video recordings will help us understand how they make use of designs provided in the app to actively pick up clues in their surroundings to help them solve problems. After all data has been analyzed, all survey, voice, and video records will be destroyed.

**Voluntary Participation:**

Your child can freely choose to take part or to not take part in this study. There will be no penalty for either decision. If they do agree to participate, they may also withdraw at any time.

**Questions:**

If you have any questions regarding this research project, please contact the researcher, Dongping Zheng at (808) 635-0279 or zhengd@hawaii.edu. You may contact the UH Human Studies Program at (808) 956-5007 or uhirb@hawaii.edu. to discuss problems, concerns and

questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit <https://www.hawaii.edu/researchcompliance/information-research-participants> for more information on your child's rights as a research participant.

**Signature(s) for Consent:**

My signature below indicates that I agree participate in the research project titled, "Mobile-Assisted Place Based Language Learning" I understand that I can end participation at any time by notifying the researcher.

I have read and understand all information provided. I agree to allow my child to participate in this research study.

Name of Child (Print)\_\_\_\_\_

Name of Parent/Guardian (Print)\_\_\_\_\_

Parent/Guardian's Signature\_\_\_\_\_

Date\_\_\_\_\_

I agree to my child to be filmed and voice recorded.

Name of Child (Print)\_\_\_\_\_

Name of Parent/Guardian (Print)\_\_\_\_\_

Parent/Guardian's Signature\_\_\_\_\_

Date\_\_\_\_\_

\* You must agree to both conditions for your child to participate in this study.

**Appendix G**  
**Child Assent Form**

**CHILD ASSENT STATEMENT**  
**Consent Form: Mobile-Assisted Place-Based Language Learning Project**

**Principal Investigator:**

**Dongping Zheng, Associate Professor, Department of Second Language studies,  
University of Hawaii.**

My name is Dongping Zheng, and I am a professor in the Department of Second Language Studies (SLS) at the University of Hawaii, Manoa. As a professor and a researcher, I do research on designing game-based virtual worlds to engage kids to immerse in gameplay for learning a foreign language. My current project is to design a Chinese mobile game through the ARIS mobile app (<https://arisgames.org/>) for young people like yourself. We need your help not only to design a game that kids love to play, but also we would like to help you learn and use Chinese in a fun and challenging way and introduce you to different aspects of Chinese culture. Some of my graduate students in the SLS department are working with me on this project. As part of the evaluation process, we will observe how you interact with native speakers of Mandarin Chinese in Honolulu Chinatown. We will also interview you with a few questions, have you fill out a few surveys, and record your interactions with Chinatown's community and group members with a video camera.

We invite you to participate in this project. Because you are a minor (under 18), we will ask your parents for their consent before you can participate in this project.

**Project Description – Activities and Time Commitment:**

If you decide to take part in this study, you will be expected to attend up to two gameplay sessions that will take place on a Saturday over a week. These sessions will have you walking around UH Manoa and Chinatown and completing Chinese Language related tasks in Chinese using a gaming app on a mobile device we will provide. These sessions will take approximately 1-2 hours to complete.

You will be also asked to fill out a pre and post survey. These surveys will consist of mostly multiple choice questions with a few open ended responses. These surveys will consist of

mostly multiple choice questions with a few open ended responses. Both surveys will be completing before and after gameplay, and will be done through Google forms. Each survey will take approximately 10 minutes to complete.

At the end of each session, a short group interview will be done. Interview questions will ask you how we can make the game better. Interviews should take approximately 10-15 minutes.

**Benefits and Risks:**

By participating in this project, you will be able to practice the Chinese you have learned in class. Possible risks to you are that you will be expected to walk for 1-2 hours. Those who are unable to do this should not sign up for this study. Temperatures can reach in the upper 80's on a hot day in downtown Honolulu. You are advised to bring your own water and we will provide you with snacks in case you get tired from walking.

**Compensation:**

By choosing to participate in this project, you will receive \$20 in cash.

**Confidentiality and Privacy:**

Your privacy is very important to us, all surveys and interview questions will not be used for any other purpose other than for this study. We will not publish any of your names and will replace them with pseudonyms if need be. Each gameplay session will be video and voice captured by a participating researcher who will be accompanying you. Voice and video data will be uploaded to a password protected cloud drive that only my project members can access. The video recordings will help us understand how you make use of designs provided in the app to actively pick up clues in your surroundings to help you solve problems. After all data has been analyzed, all survey, voice, and video records will be destroyed.

**Voluntary Participation:**

You can freely choose to take part or to not take part in this study. There will be no penalty for either decision. If you do agree to participate, you may also withdraw at any time.

**Questions:**

If you have any questions regarding this research project, please contact the researcher, Dongping Zheng at (808) 635-0279 or zhengd@hawaii.edu. You may contact the UH Human Studies Program at (808) 956-5007 or uhirb@hawaii.edu. to discuss problems, concerns and

questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit <https://www.hawaii.edu/researchcompliance/information-research-participants> for more information on your rights as a research participant.

**Assent Signature:**

My signature below indicates that I agree participate in the research project titled, "Mobile-Assisted Place-Based Language Learning" I understand that I can end participation at any time by notifying the researcher.

I have read and understand all information provided. I agree to participate in this research study.

Name (Print)\_\_\_\_\_ Signature\_\_\_\_\_

Date\_\_\_\_\_

I agree to be filmed and have my voice recorded.

Name (Print)\_\_\_\_\_ Signature\_\_\_\_\_

Date\_\_\_\_\_

\* You must agree to both conditions to participate in this study.